

yellow spots to both sternum and abdomen; legs pale reddish brown.

Long. 12 millim.

*Hab.* Delagoa Bay.

*Olenecamptus tessellata*, sp. n.

Ferruginous, marked and spotted with cretaceous.

Head long, with a distinct central striation; a prominent marginal ridge between antenniferous tubercles, with a narrow central and two broad lateral cretaceous fasciæ, all united in front; antennæ much longer than the body, basal joint robust and very coarsely punctate, third joint more than three times as long as the first, apex of fourth joint and the whole of remaining joints darker brown. Pronotum longer than broad, transversely striate, constricted posteriorly, profoundly sulcate before anterior and posterior margins, with a broad cretaceous fascia on each lateral margin. Scutellum subquadrate, impunctate. Elytra densely and coarsely punctate; each elytron ornamented with four large, irregularly-shaped, cretaceous pubescent spots—one at base, second longest, about middle, third deeply notched, fourth smallest, near apex; humeral angles subprominent, lateral margins slightly concavely sinuate, apices very obliquely rounded. Body beneath griseously pubescent.

Long. 13 millim.

*Hab.* Delagoa Bay.

LX.—*Descriptions of some new Scorpions from Central and South America.* By R. I. POCOCK.

THE species from Central America recorded in this paper will be redescribed and fully figured in the 'Biologia Centrali-Americana.'

Family *Buthidæ*.

Genus *TITYUS*, C. Koch.

*Tityus Championi*, sp. n.

♀.—*Colour* yellow, indistinctly variegated with black; mandibles and frontal portion of carapace, as well as its lateral margin, infusate; tergites indistinctly mottled, blackish laterally, with a bright yellow posterior spot, in addition to this spot there are four similar spots on each side of the middle line; posterior median portion of tergites with

a broad fuscous patch relieved by the pale keel and a pair of yellow spots; sterna rather thickly clouded with fuscous; lower side of tail clouded with fuscous, more thickly at the posterior end, the lower side of the fifth segment being mostly black; sides of tail also clouded with black, vesicle almost wholly infuscate, aculeus pale; chelæ and legs mostly yellowish red, indistinctly mottled, digits black, with flavous tips; coxæ of legs pale. Upperside of *trunk* weakly granular in the intercarinal spaces; lower side of abdomen coriaceous, with a smooth triangular area in the middle of the third sternite, the fifth sternite with the keels finely granular, the external ones very short. *Tail* about six times as long as the carapace, which is a little shorter than its fifth segment, its fourth segment a little more than twice as long as wide (6·2 : 3); vesicle slightly wider than brachium, about as wide as hand; the intercarinal spaces finely granular; median lateral keel represented by a few posterior granules; the normal keels strong and coarsely granular, the superior subdenticulate and ending posteriorly in an elongated denticle, those on the fifth strongly granular; vesicle strongly granular; the tooth large, with conspicuous accessory denticle.

*Chelæ* of medium length, keels and granulation normal, hand only very slightly thicker than brachium, narrow, weakly keeled, the keels subgranular; digits in contact, weakly lobate and sinuate at the base, the movable about twice as long as the hand-back, furnished with 15 rows of teeth.

*Pectinal teeth* 18; no lobate expansion at the base of the shaft.

*Measurements in millimetres.*—Total length 62; length of carapace 6·5, of tail 39; width of the first segment 3·5, of the fifth 3, length of latter 7; width of vesicle 2·6, of brachium 2·3, of hand 2·5; length of hand-back 4·5, of movable digit 9.

*Loc.* Bugaba in Panama (*G. C. Champion*).

I am doubtful as to the sex of this specimen. The shortness and slenderness of the tail, coupled with slender unmodified chelæ, are evidence of its being a female. If this be the case, the absence of the pectinal lobe removes the species from the vicinity of the so-called *americanus* section of the genus, and points to relationship between it and the Brazilian species *stigmurus*, *bahiensis*, and *rufofuscus*, especially *stigmurus*. But from these it differs in having the caudal crests stronger and more strongly denticulated, especially the superior.

## Genus CENTRURUS, Hempr. &amp; Ehrenb.

*Centrurus barbudensis*, sp. n.

♀.—*Colour*. Trunk banded as in *C. insulanus* of Thorell, from Jamaica; legs, palpi, and lower surface of tail thickly spotted with black.

More coarsely granular than *insulanus*, but with the vesicle neither so wide, so high, nor the aculeus so curved. Hand broader, its width nearly half the length of the movable digit, with its inner surface rather coarsely granular.

*Pectinal teeth* 21.

♂.—More different from the male of *insulanus* than is the female, the tail being very long, about eight times the length of the carapace, which is shorter than its first segment; vesicle long and piriform.

In *insulanus* the tail is less than seven times the length of the carapace, which is longer than its first segment; the vesicle is subspherical.

*Pectinal teeth* 23.

*Measurements in millimetres*.—♀. Total length 59, carapace 6, tail 38.5; width of hand 3; length of movable digit 7.5 (in a female of *insulanus* the digit measures 7.5 and the width of the hand 2.5). ♂. Total length 68, of carapace 5.5, of tail 47.

*Loc.* Barbuda and Bird's Island (*W. R. Forrest coll.*).

*Centrurus ochraceus*, sp. n.

♀.—*Colour* a uniform ochre-brown on the upperside of the trunk (the very edges of the tergites alone infuscate); palpi and tail a uniform ochre-yellow; legs paler yellow.

*Trunk* less coarsely and less closely granular than in *R. margaritatus*; keels on tail and last abdominal sternite as in *margaritatus*, but less strongly granular, those on the sternite quite smooth; spine beneath aculeus of vesicle large, broader at base than in *margaritatus*; chelæ carinate as in the latter; the external finger-keel complete, but, like the middle finger-keel, smooth; eight rows of teeth on the movable digit.

♂.—Differing from the male of *margaritatus* in the same characters as the female from the female of *margaritatus*, but further recognizable by the different form of the vesicle, which, when viewed from below, is evenly oval and not broad, and strongly shouldered at the base of the aculeus.

*Pectinal teeth*, ♀ 27; ♂ 27-28.

*Measurements in millimetres.*—♀. Total length 72, carapace 7·2, tail 42. ♂. Total length 67, carapace 6, tail 43.

*Loc.* Yucatan (in Keyserling's coll.).

*Centrurus nigrovariatus*, sp. n.

♂. Allied to *C. infamatus* of C. Koch in colour and most structural features, but differing in the formation of the posterior segments of the tail, the fifth segment being wider than the first, with its upper surface much elevated in the middle, with a deep median groove expanding posteriorly into an oval depression.

*Measurements in millimetres.*—Total length 52, carapace 4·5, tail 33, width of its first segment 2·3, of its fifth 2·7, height of latter 2·5.

*Loc.* Oaxaca, Mexico.

*Centrurus flavopictus*, sp. n.

*Colour* reddish or brownish black, with a narrow median dorsal yellow stripe on the tergites, and a yellow spot on the posterior angle; tail reddish brown, darker beneath and posteriorly, vesicle red; humerus and brachium of chelæ blackish red, the trochanter and hand clear yellowish red, digits black, with distal third pale reddish; legs entirely yellow, mandibles infuscate distally.

External finger-keel of hand nearly obsolete, internal granular; eight rows of teeth on digit.

*Pectinal teeth* 22 (♂ ♀).

*Measurements in millimetres.*—♀. Total length 62, tail 37, carapace 6·7; width of hand and brachium 2·5, movable digit 7·5. ♂. Total length 69; length of tail 46, of carapace 7; width of hand 3·3, of brachium 2·5, length of finger 8.

*Loc.* Jalapa in Mexico.

*Centrurus limbatus*, sp. n.

♂.—Allied to *C. gracilis*, but strikingly different in colour as well as in some structural features. *Carapace* and tergites yellow or reddish, narrowly margined with black; ocular tubercle black; tail also yellow, with its fifth segment and vesicle uniformly brown or black; keels spotted black, especially those on the lower side of the segments; legs entirely pale yellow; palpi also pale yellow, digits quite black with reddish tips; mandibles distally infuscate.

Nine rows of teeth on the digits.

*Pectinal teeth* 25.

*Measurements in millimetres.*—Total length 100; length of carapace 9, of tail 70; width of hand 4, of brachium 3, length of movable digit 11.5.

*Loc.* Sirires, Talamanca (*H. Pittier coll.*).

*Centrurus bicolor*, sp. n.

♀.—*Colour* of trunk a brownish black above; sterna ochre-yellow, mesially and marginally infusate; first four segments of tail yellow above and at the sides, tinted with fuscous below, the keels black; fifth segment, vesicle, and lower surface of fourth infusate; mandibles infusate; chelæ yellow, with the exception of a fuscous spot at the apex of the brachium; hands reddish black, with black keel, fingers black with reddish tips; legs entirely rich yellow, the maxillary processes of chelæ and anterior legs infusate; pectines pale.

*Carapace* sparsely granular as in *rubricauda*. Tail almost as in the latter, but the crests more numerous granular, there being upwards of 25 granules on the infero-lateral crest of the third segment; sterna 2-4 coriaceous and punctured, the fourth distinctly rugose and granular. Crests on hand strong.

*Pectinal teeth* 26-28.

♂.—Like female in colour, and differing structurally in the ordinary characters; sterna not granular.

*Pectinal teeth* 28-29.

*Measurements in millimetres.*—♀. Total length 109; length of carapace 10, of tail 63. ♂. Total length 120; length of carapace 11, of tail 82.

*Loc.* ♀. Poyo azul de Pirris (Atlantic) (*T. Zeledon coll.*).

♂. Santo Domingo de Golfo Dulce (*H. Pittier*).

*Centrurus nigrimanus*, sp. n.

♂.—Resembling *C. bicolor* in colour, but more closely and coarsely granular above; the fifth caudal segment having its crests distinctly granular, and also the inferior and lateral surfaces; the vesicle on the other hand, instead of being granular, is smooth below, and the tooth is much closer to the aculeus; the infero-lateral crests of the third caudal segment are furnished with about 30 granules.

*Pectinal teeth* 32-33.

*Loc.* Oaxaca (type) (63. 74): also a younger specimen of apparently the same species from Honduras (*Indo-Colonial Exhibition*).

*Centrurus rubricauda*, sp. n.

♀.—*Colour* almost a uniform reddish black all over; the hands redder than the rest of the chelæ; tarsi and pectines yellow; tail reddish ochre-brown. Granular crests on hand evident and finely granular; crests on tail rather coarsely granular, but the *granules few in number* and more spaced than in allied forms; on the infero-lateral keel of the third segment, for example, the granules are fewer than twenty (15–19); vesicle granular; the spine not close up to the aculeus. *Sterna* 2–4 smooth, punctured, especially number 3.

*Pectinal teeth* 20–21.

♂.—Differing from the female in the normal sexual features, but in addition with the legs bright yellow; crests on hand scarcely perceptible; crest on tail weakly and sparsely granular as in female; vesicle parallel-sided when viewed from below, bulging on each side at right angles at the base of the aculeus.

*Pectinal teeth* 21–23.

*Measurements in millimetres*.—♀. Total length 80; length of carapace 8·5, of tail 51. ♂. Total length 103; length of carapace 9, of tail 71.

*Loc.* Managua in Costa Rica (*Dr. Rothschuh*). Four male and four female specimens.

*Centrurus nigrescens*, sp. n.

♀.—*Colour* a uniform blackish green; tarsi and distal half of fingers ferruginous; pectines flavous; coxæ and sternal areas mesially ochraceous. Coarsely and thickly granular; middle finger-keel or hand strong, all the crests on the tail strongly granular; vesicle weakly granular; the spine close up to the base of the vesicle.

*Pectinal teeth* 25–27.

♂.—Like female in colour. Inferior crests on fifth caudal segment distinct and granular; vesicle about twice as long as wide, almost smooth, its shoulders not very strongly expanded.

*Pectinal teeth* 28–30.

*Measurements in millimetres*.—♀. Total length 89, of carapace 9, of tail 53·5. ♂. Total length 105, carapace 9, tail 73.

*Loc.* Xantipu (5500 feet alt.) (type); also Amula and Orizaba.

In colouring the female of this species resembles that of *rubricauda*, except that the reddish tint upon the palpi and

tail of the latter is not noticeable. But the granulation of the carapace is much closer, the interstices between the series of larger granules being filled in with fine granules, and the crests on the tail much more numerously granular, there being about 35 granules on the infero-lateral crest of the third segment; lastly, the spine is much closer to the base of the aculeus.

*Centrurus fulvipes*, sp. n.

♀.—Apparently differing from *nigrescens* only in colour, the humerus of the palp and the entire legs being a clear reddish yellow, also the basal segments of the tail reddish brown above. Spine on vesicle as in *nigrescens*, close to base of aculeus.

*Pectinal teeth* 28–29.

*Loc.* Xantipu in Mexico.

Family Scorpionidæ.

Genus DIPLOCENTRUS, Pet.

*Diplocentrus rectimanus*, sp. n.

Differing from the male of *Whitei* in the characters pointed out in the annexed table of species.

*Measurements in millimetres.*—Total length 55; length of carapace 6, of tail 30; width of hand 5·5; length of movable digit 7.

*Loc.* Jalapa (Mexico).

*Diplocentrus politus*, sp. n.

The essential characters of this species are set forth in the subjoined synoptical table. *Colour* yellowish brown. Upper-side of trunk smooth and polished; carapace granular laterally and with a few granules on the frontal lobes; tergites with a few scattered granules posteriorly and laterally; the last more coarsely granular. *Tail* robust, with intercarinal spaces smooth, the normal keels coarsely granular; the median lateral and inferior medians represented by a few granules on the fourth segment; median keel on fifth weak; sides of these segments with a few coarse granules; vesicle granular. *Chelæ* robust; humerus with irregular coarse granulation above, not distinctly keeled, smooth behind and below; brachium almost wholly smooth, a little granular in front above; hand smooth above, marked with scattered punctures, its inner edge and

lower surface towards the base of the immovable digit granular. *Legs* smooth.

*Pectinal teeth* 7.

Length 36 millim., of carapace 4·5, of tail 18·5.

*Loc.* Brazil. Three female examples in the Museum Collection.

The species of this genus known to me may be distinguished as follows:—

- a. Lateral margin of distal extremity of tarsus lobate, its inferior angle rounded, the terminal spine elevated above the level of the rest, forming a curved series.
  - a<sup>1</sup>. Immovable digit of hand normally curved, inner border of hand more strongly produced; sculpturing of hand a reticulated pattern of ridges; upper surface of humerus flat, with strong anterior keel; frontal lobes not coarsely granular; tergites with a few large coarse granules amongst the fine granulation; lateral margins of caudal segments straight or nearly so; infero-lateral caudal crests not strongly converging; pectinal teeth 12–14 . . . *Whitei*, Ger., ♂ .
  - b<sup>1</sup>. Immovable digit much straighter, inner edge of hand less strongly produced; sculpturing of hand more granular; area at base of digits distinctly granular; upperside of humerus convex, with weak anterior crest; frontal lobes coarsely granular; tergites without distinct coarse granules, but very rough with fine close-set granulation; caudal segments with rounded convex sides; infero-lateral caudal crests strongly converging posteriorly; pectinal teeth 10 . . . . . *rectimanus*, sp. n., ♂ .
- b. Lateral margin of distal extremity of the tarsus nearly straight, the lower angle squared or acute, the terminal spine in the same straight line with the rest (♂ ♀).
  - a<sup>2</sup>. Caudal segments with relatively weak keels, the median inferior keels obsolete on the third and fourth segments, strong but not granular upon the first and second, median lateral keel weak, though just visible upon the second, third, and fourth segments; vesicle not granular; cuticle of trunk, legs, chelæ, and tail densely and finely punctured, less closely so on the sterna and coxæ; five spines on each side of the posterior tarsi . . . *antillanus*, Poc., ♀ .
  - b<sup>2</sup>. Caudal segments strongly keeled, the inferior four keels strong and granular upon the first, second, and third segments, traceable by granules on the fourth, median lateral keel strong on the first and second segments and visible on the third; vesicle granular.



- a*<sup>3</sup>. Upperside of trunk, intercarinal spaces of tail, and outer surface of legs densely and closely granular; hands finely and closely punctured, furnished with one keel; 5-6 spines on posterior tarsi . . . . . *scaber*, Poc., ♀.
- b*<sup>3</sup>. Upperside of trunk, intercarinal spaces of tail, and outer side of legs not closely granular, nor finely punctured as in *antillanus*, but smooth, polished, and beset with a few larger scattered granules; hands not closely and finely punctured as in *scaber* and *antillanus*; hands not keeled; 6-7 spines on posterior tarsi . . . . . *politus*, sp. n.

The following brief criticisms may be made respecting Prof. Kraepelin's determinations of the species of this genus:—

*Diplocentrus Hasethi*, Kraepelin (Jahrb. Hamb. Wiss. Anst. xiii. p. 130, 1896), from Curaçao, is closely allied to *D. antillanus*, Poc., not to *D. Whitei*, Gervais; but, judging from the description, it differs in having the vesicle granular and the caudal keels better developed.

*Diplocentrus Whitei*, Kraepelin (Jahrb. Hamb. Wiss. Anst. xi. p. 13, 1894), is not the same as *Whitei* of Gervais, whatever else it may be. Prof. Kraepelin quotes *D. mexicanus*, Peters, and *D. Gundlachi*, Karsch, as undoubtedly synonymous with it, and *Oiclus Purvesi*, Becker, and *D. Keyserlingii*, Karsch, as doubtfully so. So far as *Oiclus Purvesi* is concerned, this view is quite untenable. The British Museum has recently received from Mr. Forrest specimens of the latter species from Antigua, and I have been able to establish the accuracy of Mons. Simon's observations as to the presence of but two lateral eyes on each side, the feature upon which the genus *Oiclus* was based. In addition to this the species is characterized by sundry well-marked specific features, sufficient, apart from the eyes, to differentiate it from all the members of the genus *Diplocentrus* known to me.

*Diplocentrus antillanus*, Kraepelin (*loc. cit.* p. 16), is not identical with *D. antillanus*, Pocock, but is either the same as, or closely allied to, *D. Whitei*, Gervais, and *D. rectimanus*, Poc.

#### Family Bothriuridæ.

##### Genus UROPHONIUS, Poc.

##### *Urophonius granulatus*, sp. n.

♀.—*Colour* (faded) yellow, indistinctly variegated with

black, a continuous pale band on the median dorsal area of the tergites; femora and tibiæ of legs variegated; sides and lower surface of tail lined with black.

*Carapace* finely granular, frontal portion smooth. *Tergites* finely granular; the last more coarsely, with two granular crests on each side. *Sterna* smooth, finely punctulate, the last granular in the middle posteriorly. *Tail* of normal thickness, nearly parallel-sided; superior and supero-lateral keel present and granular on segments 1-3, the superior also traceable on segment 4, the lower side of segments 1 and 2 coarsely granular, the granules arranged along the four crests, those in the middle irregularly disposed; the inferior lateral crests very weak on the second segment; third and fourth segments smooth laterally and below, without crests; fifth segment with three inferior granular keels extending along the posterior two-thirds of the segment, the area between them irregularly granular in its posterior half; vesicle finely granular laterally and below, as wide as segment 5.

*Chelæ*: humerus weakly granular and keeled above at the base and in front; brachium and hand smooth, not keeled, punctured; hand slender, a little wider than brachium, narrower than vesicle, its width considerably less than half the length of the movable digit, the median teeth of which are arranged in two irregular rows only in the basal half.

*Legs* with femora externally finely granular, especially on third and fourth pairs; tarsus 4 with 6-6 spines, tarsus 3 with 5-5 spines, tarsus 2 with 2-2 spines, tarsus 1 with 1-1 spines.

*Pectinal teeth* 17; apices of each half of genital operculum rounded.

*Measurements in millimetres.*—Total length 33.5; length of carapace 4.3, of tail 19.5; width of vesicle 2, of hand 1.5, of brachium 1.3; length of movable digit 4.

Exact locality doubtful, probably Chili, the specimen being contained in a tube with examples of *Bothriurus coriaceus*, a species which has been recorded from Coquimbo, &c.

The female of this species may be recognized from that of *brachycentrus* (= *Jheringi*, Poc.) by the following features:—

- a. Third segment of tail entirely smooth and keelless below, smooth tubercles or granules on lower side of first segment arranged in four longitudinal lines, the medians more coarsely and irregularly granular; second segment with two irregular rows of rounded tubercles below; superior crests present and granular on segments 1-4, supero-lateral present and granular

- on segments 1-3; vesicle granular to the base of aculens; carapace and terga finely granular. *granulatus*, sp. n.
- b. Third segment of tail granular below, superior and supero-lateral crests obsolete on segments 1-4; segments 1 and 2 more coarsely and irregularly tubercular below, the first with an anterior transverse crest of tubercles; vesicle punctured; tergites and carapace smooth and polished ..... *brachycentrus*, Thor.

LXI.—*The Scorpions of the Genus Væjovis contained in the Collection of the British Museum.* By R. I. POCKOCK.

Genus VÆJOVIS, C. Koch.

*Vajovis variegatus*, sp. n.

♀.—*Colour* reddish ochre-yellow or reddish brown; carapace with black tubercle and irregular lateral blackish patches; tergites regularly marked, lateral margin black, with a yellow stripe separating it from a broad black patch; the median keel marked with a very narrow black stripe which sometimes expands in front and behind; between this and the large lateral patch there is a deep black spot, narrowed and projecting inwards in front, where it sometimes fuses with the expanded portion of the keel-stripe; tail clouded below and laterally with black, the position of the lower keel emphasized by black stripes; vesicle and upper surface of tail clear reddish brown.

*Palpi* reddish brown, scarcely at all infuscate; legs strongly striped externally, with pale tarsi and protarsi; lower surface pale, last sternite infuscate at the sides.

Upper surface of *trunk* coarsely granular. *Tail* more than four times length of carapace, which equals its first and second segments in length; anterior segments granular above and laterally; fourth and fifth segments smooth above and laterally; superior and supero-lateral keels strongly developed, granular, dentate posteriorly, except the supero-lateral on the fourth segment; segments 1 to 4 entirely smooth and polished below, the median keels entirely obsolete, the lateral merely represented by a low, indistinct, smooth ridge; fifth segment with its lower surface finely and closely granular throughout; *vesicle* entirely smooth and, like the lower side of the tail, punctured.

*Chelæ*: humerus granular above, in front, and finely below, with well-developed superior and anterior crests; brachium with the upper and lower anterior crests well